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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,469	10/01/2003	John William Devitt	RD29547-1	2468
41838	7590	08/23/2006	EXAMINER	
GENERAL ELECTRIC COMPANY (PCPI)			VALENTIN, JUAN D	
C/O FLETCHER YODER				
P. O. BOX 692289			ART UNIT	PAPER NUMBER
HOUSTON, TX 77269-2289			2877	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/605,469

Applicant(s)

DEVITT ET AL.

Examiner

Juan D. Valentin II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Examiner would like to apologize for the indication of allowable subject matter regarding claim 4. Claim 4 has been newly rejected in view of new found prior art Walker (5,308,986).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, & 13-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Hatley et al. (USPN '458 B1, hereinafter Hatley) in view of Allison et al. (USPN '528, hereinafter Allison) and further in view of Walker (USPN '986).

#### **Claims 1, 4, 5, 23-26**

Hatley discloses in conjunction with Fig. 15, a system for in situ inspection of a surface of a hot gas component of a turbine comprising a robot having an elongated inspection arm 200 extending toward the surface of the hot gas component, and an inspection head 204 carried adjacent an end of said inspection arm remote from controls for said robot, said inspection head manipulated by said inspection arm to locate said inspection head adjacent interior wall portions defining the hot gas component including by displacing the inspection head in a generally axial

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direction and generally radially toward a wall portion of the hot gas component being inspected (col. 5, lines 36-64, col. 8, lines 45-50, & col. 9, line 20-col. 12, line 21).

While Hatley is silent as to exactly what type of optical inspection system is located on the inspection head 204, specifically a UV system to excite and detect fluorescence from a taggant material disposed in a coating on the hot gas component. Allison shows that it is known to provide a UV system to excite and detect fluorescence from a taggant material disposed in a coating (abstract, col. 2, lines 1-39, col. 4, line 1-col. 5, lines 54, & col. 6, line 27- col. 8, line 22) for a temperature sensor for use on turbine engine components (col. 5, lines 7-10, col. 6, lines 33-41, & col. 8, lines 38-46). It would have been obvious to someone of ordinary skill in the art to combine the device of Hatley with the UV optical inspection system of Allison for the purposes of providing remote measurement of the temperature within a turbine engine under test (Allison, col. 8, lines 38-44).

Hatley in view of Allison substantially teaches the claimed invention except that it fails to show wherein the UV system includes an intensified camera optically coupled to a collection lens. Walker shows that it is known to provide an intensified camera (claims 4 & 5) optically coupled to a collection lens (Fig. 3A, refs. 24, 28, 30, 36, col. 8, line 50-col. 9, line 55, col. 11, lines 25-29, col. 13, lines 59-63) for a radiographic imaging system. It would have been obvious to someone of ordinary skill in the art to combine the device of Hatley in view of Allison with the image intensifier of Walker for the purposes of providing high efficiency and high resolution imaging system (Walker, col. 4, lines 35-42).

The method is suggested by the functions set forth with regards to the apparatus claims 1 as rejected above.

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**Claim 2**

Hatley as applied above further discloses wherein said UV system is configured for simultaneous usage with a visual inspection system on said inspection head (col. 3, lines 32-45). It is the position of the Office that the word “configured” adds no further limiting structure to the apparatus claim, and further that Hatley discloses the claimed structure, and the system of Hatley in view of Allison therefore are “configured” for simultaneous use.

**Claims 9 & 10**

The applicants originally filed disclosure discloses that applicants claimed invention can be used with a well known black and white camera which uses an objective and auto iris. Hatley discloses the use of a camera to inspect and measure surfaces of gas turbine engines. It would have been obvious to someone of ordinary skill in the art at the time of the claimed invention to use a black and white camera as the camera of choice to capture images of the engine components under test since there is no need for a color camera and it would be cheaper to use a simple black and white camera. Further it would have been obvious to someone of ordinary skill in the art at the time of the claimed invention to use an objective and auto iris with the camera assembly of Hatley in order to protect the CCD from stray light as the inspection arm rotates about the pan and tilt axis's (col. 1, line 66-col. 2, line 12, col. 2, lines 48-56, col. 3, lines 31-45, col. 8, lines 38-50, col. 9, lines 20-62, col. 10, lines 33-50, col. 11, lines 43-49, col. 12, lines 8-21).

**Claim 11**

Official notice taken. It is the position of the Office that placing a mirror at a 45 degree angle with respect to impinging light in order to measure a surface is not novel and would have

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been obvious for someone of ordinary skill in the art at the time of the claimed invention to utilize for the purposes of acquiring an image of a measurement surface depending on the structural orientation of the optical measurement system.

**Claim 13**

Hatley discloses the inspection of a thermal barrier coating (col. 1, lines 20-35).

**Claim 14**

Hatley as applied above further discloses wherein said inspection head is configured to rotate about pan and tilt axis relative to said arm (Hatley, col. 9, line 63-col. 10, line 42).

**Claim 15**

Hatley discloses in conjunction with Fig. 15, an inspection system (col. 3, line 65-col. 4, line 31) located on a mount secured to an interior robotic manipulator 200 and to an open end of one of said combustion casings forwardly of the transition piece body thereof, an elongated inspection arm extending from said mount toward the one transition piece body of the one combustion casing, and an inspection head carried adjacent an end of said inspection arm remote from said mount within the one transition piece body of the one combustion casing, said inspection head manipulated by said inspection arm to locate said inspection head adjacent interior wall portions of the said transition piece body including by displacing the inspection head in a generally axial direction and generally radially toward a wall portion of the transition piece body being inspected (col. 5, lines 36-64, col. 8, lines 45-50, & col. 9, line 20-col. 12, line 21).

While Hatley is silent as to exactly what type of optical inspection system is located on the inspection head 204, specifically a UV system to excite and detect fluorescence from a

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taggant material buried (doped) in a thermal barrier coating (TBC) on the transition piece body. Allison shows that it is known to provide a UV system to excite and detect fluorescence from a taggant material disposed in a coating (abstract, col. 2, lines 1-39, col. 4, line 1-col. 5, lines 54, & col. 6, line 27- col. 8, line 22) for a temperature sensor for use on turbine engine components (col. 5, lines 7-10, col. 6, lines 33-41, & col. 8, lines 38-46). It would have been obvious to someone of ordinary skill in the art to combine the device of Hatley with the UV optical inspection system of Allison for the purposes of providing remote measurement of the temperature within a turbine engine under test (Allison, col. 8, lines 38-44).

Hatley in view of Allison substantially teaches the claimed invention except that it fails to show wherein the UV system includes an intensified camera optically coupled to a collection lens. Walker shows that it is known to provide an intensified camera (claims 18 & 19) optically coupled to a collection lens (Fig. 3A, refs. 24, 28, 30, 36, col. 8, line 50-col. 9, line 55, col. 11, lines 25-29, col. 13, lines 59-63) for a radiographic imaging system. It would have been obvious to someone of ordinary skill in the art to combine the device of Hatley in view of Allison with the image intensifier of Walker for the purposes of providing high efficiency and high resolution imaging system (Walker, col. 4, lines 35-42).

**Claim 16**

Hatley as applied above further discloses wherein said UV system is configured for simultaneous usage with a visual inspection system on said inspection head (col. 3, lines 32-45). It is the position of the Office that the word “configured” adds no further limiting structure to the apparatus claim, and further that Hatley discloses the claimed structure, and the system of Hatley in view of Allison therefore are “configured” for simultaneous use.

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3. Claims 1, 3, 6-8, 13, 15, 17, & 23-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Allison in view of Hatley and further in view of Walker.

**Claims 1, 4, 5, & 23-26**

Allison discloses a UV system to excite and detect fluorescence from a taggant material disposed in a coating on the hot gas component (abstract, col. 2, lines 1-39, col. 4, line 1-col. 5, lines 54, & col. 6, line 27- col. 8, line 22) for a temperature sensor for use on turbine engine components (col. 5, lines 7-10, col. 6, lines 33-41, & col. 8, lines 38-46).

Allison fails to disclose the optical inspection system located on a robotic arm. Hatley shows that it is known to provide a robot having an elongated arm which has an optical inspection head located at the end of the arm for inspecting the interior surface of a turbine engine component (Fig. 15, col. 5, lines 36-64, col. 8, lines 45-50, & col. 9, line 20-col. 12, line 21). It would have been obvious to someone of ordinary skill in the art to combine the device of Allison with the robotic arm turbine inspection system of Hatley for the purposes of providing remote measurement of the temperature within a turbine engine under test (Allison, col. 8, lines 38-44).

Allison in view of Hatley substantially teaches the claimed invention except that it fails to show wherein the UV system includes an intensified camera optically coupled to a collection lens. Walker shows that it is known to provide an intensified camera (claims 4 & 5) optically coupled to a collection lens (Fig. 3A, refs. 24, 28, 30, 36, col. 8, line 50-col. 9, line 55, col. 11, lines 25-29, col. 13, lines 59-63) for a radiographic imaging system. It would have been obvious to someone of ordinary skill in the art to combine the device Allison in view of Hatley with the



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image intensifier of Walker for the purposes of providing high efficiency and high resolution imaging system (Walker, col. 4, lines 35-42).

The method is suggested by the functions set forth with regards to the apparatus claims 1 as rejected above.

### **Claim 3**

Allison discloses wherein said UV system includes a UV light source configured to excite said taggant material with a wavelength between about 254nm and about 300nm (col. 3, lines 30-52).

### **Claims 6 & 7**

Allison discloses the use of narrowband optical filters in the wavelength ranges of 483, 575, and 595 nanometers, except fails to teach the use an optical filter in the 610nm wavelength range. It is inherent to someone of ordinary skill in the art at the time of the invention was made to find the optimum wavelength emission range of the activator dopant (taggant) and therefore use a suitable optical filter for said emission wavelength range, since it has been held that discovering an optimum value or workable range of a result effective variable involves only routine skill in the art.

### **Claim 8**

Allison disclose the use of a Nd:YAG laser or other equivalent UV light sources such as a tunable dye laser. Official notice taken. It is obvious to someone of ordinary skill in the art at the time of the claimed invention to use a filter with a tunable dye laser, it would have been obvious to combine the tunable dye laser of Allison in view of Hatley with a filter for the purposes discriminating the emission wavelength to a desired output wavelength range.

**Claim 13**

Allison discloses the inspection of a thermal barrier coating (col. 3, line 30-col. 4, line 41).

**Claims 15, 18, & 19**

Allison shows that it is known to provide a UV system to excite and detect fluorescence from a taggant material disposed in a coating (abstract, col. 2, lines 1-39, col. 4, line 1-col. 5, lines 54, & col. 6, line 27- col. 8, line 22) for a temperature sensor for use on turbine engine components (col. 5, lines 7-10, col. 6, lines 33-41, & col. 8, lines 38-46).

Allison fails to disclose the optical inspection system mounted on a robotic arm. Hatley shows that it is known to provide a robot having an elongated arm which has an optical inspection head located at the end of the arm (and mounting structure) for inspecting the interior surface of a turbine engine component (Fig. 15, col. 5, lines 36-64, col. 8, lines 45-50, & col. 9, line 20-col. 12, line 21). It would have been obvious to someone of ordinary skill in the art to combine the device of Allison with the robotic arm turbine inspection system of Hatley for the purposes of providing remote measurement of the temperature within a turbine engine under test (Allison, col. 8, lines 38-44).

Allison in view of Hatley substantially teaches the claimed invention except that it fails to show wherein the UV system includes an intensified camera optically coupled to a collection lens. Walker shows that it is known to provide an intensified camera optically (claims 18 & 19) coupled to a collection lens (Fig. 3A, refs. 24, 28, 30, 36, col. 8, line 50-col. 9, line 55, col. 11, lines 25-29, col. 13, lines 59-63) for a radiographic imaging system. It would have been obvious to someone of ordinary skill in the art to combine the device Allison in view of Hatley with the

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image intensifier of Walker for the purposes of providing high efficiency and high resolution imaging system (Walker, col. 4, lines 35-42).

**Claim 17**

Allison discloses wherein said UV system includes a UV light source configured to excite said taggant material with a wavelength between about 254nm and about 300nm (col. 3, lines 30-52).

4. Claims 1, 12, & 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Hatley in view of Doyle, Jr. (USPN '378 B2, hereinafter Doyle) and further in view of Walker.

**Claim 1**

Doyle shows that it is known to provide a UV system to excite and detect fluorescence from a taggant material disposed in a coating (abstract, col. 3, line 18-col. 4, line 34, col. 4, line 46-col. 5, line 5, & col. 5, lines 34-43) for a device for surface flaw detection of turbine rotor bores (col. 3, lines 18-24).

Doyle fails to disclose the optical inspection system mounted on a robotic arm. Hatley shows that it is known to provide a robot having an elongated arm which has an optical inspection head located at the end of the arm (and mounting structure) for inspecting the interior surface of a turbine engine component (Fig. 15, col. 5, lines 36-64, col. 8, lines 45-50, & col. 9, line 20-col. 12, line 21). It would have been obvious to someone of ordinary skill in the art to combine the device of Doyle with the robotic arm turbine inspection system of Hatley for the purposes of providing remote measurement of a turbine rotor bore under test (Doyle, col. 3, lines 18-24).

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Hatley in view of Doyle substantially teaches the claimed invention except that it fails to show wherein the UV system includes an intensified camera optically coupled to a collection lens. Walker shows that it is known to provide an intensified camera optically coupled to a collection lens (Fig. 3A, refs. 24, 28, 30, 36, col. 8, line 50-col. 9, line 55, col. 11, lines 25-29, col. 13, lines 59-63) for a radiographic imaging system. It would have been obvious to someone of ordinary skill in the art to combine the device Hatley in view of Doyle with the image intensifier of Walker for the purposes of providing high efficiency and high resolution imaging system (Walker, col. 4, lines 35-42).

#### **Claims 12 & 22**

Hatley in view of Doyle discloses wherein said UV light system detects defects smaller than 12.5 mm in diameter (col. Lines 44-53).

#### ***Conclusion***

"Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art.

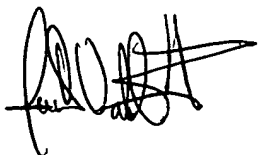
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In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well known statement was made.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D. Valentin II whose telephone number is (571) 272-2433. The examiner can normally be reached on Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Juan D Valentin II  
Examiner 2877  
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LAYLA G. LAUCHMAN  
PRIMARY EXAMINER